

AMENDMENTS TO THE SPECIFICATION

In the Specification

Please substitute the following amended paragraph(s) and/or section(s) (deleted matter is shown by strikethrough and added matter is shown by underlining):

Page 1, line 2, please add the following header:

Field of the Invention

Page 1, line 11, please add the following header:

Background of the Invention

Page 2, line 19, please add the following header:

Summary of the Invention

Page 2, line 26 – line 29, please amend the paragraph as follows:

Thus, according to the invention, a so-called “direct” detector is used, which is now provided as an area detector located on the side of the sample opposite the objective. An area detector is understood to be any detector whose detector surface is greater than the length of the light path between detector and sample from which the luminescence radiation emerges. By arranging such an area detector in the transmitting mode, it is possible, on the one hand, to dispense with intensity-reducing chromatic beam splitters. On the other hand, the area detector

can be arranged at a very short distance from the sample, so that it covers a large space angle with respect to luminescence radiation generated in the sample. The area detector used in the respect to luminescence radiation generated in the sample. The area detector used in the transmitting mode receives much more luminescence radiation intensity and thus achieves a better signal/noise ratio; this is also because, in particular, no losses occur due to intermediate optics also used for irradiation of the excitation radiation, such as imaging optics or dichroic beam splitters. Detection of the luminescence radiation need no longer be effected through the objective of the excitation beam path.

Page 3, line 29, please add the following header:

Brief Description of the Drawings

Page 3, line 33 – line 34, please amend the paragraph as follows:

Fig. 1 ~~shows~~ is a schematic view of a detail of a microscope for multi-photon fluorescence microscopy and

Page 3, line 36, please amend the paragraph as follows:

Fig. 2 ~~shows~~ is a schematic view of the laser beam exciting a multi-photon fluorescence.

Page 4, line 1, please add the following header:

Detailed Description of the Invention

Page 4, line 5 – line 8, please amend the paragraph as follows:

The microscope M comprises a source of radiation (not shown), which emits a laser beam 1 at a wavelength of, for example, around 700 nm. The laser beam 1 is incident through an objective 2, which generates a focused beam 3. The focus 4 is located in a sample 5, which is arranged below the objective 2 behind a cover glass 6 on a sample carrier 7.

Page 4, line 20 – line 25, please amend the paragraph as follows:

Thus, it may be assumed for the microscope M that fluorescence radiation comes exclusively from the focus 4. Spatially resolved detection of the fluorescence radiation is therefore not required. In order to be able to pick up, to an extend as large as possible, the fluorescence radiation which is homogeneously emitted from the focus 4, a grating 8 is arranged below the sample carrier 7, which grating deflects radiation emitted within a ray cone K onto a CCD sensor 9 such that the radiation is vertically perpendicularly incident on the sensor 9 as far as possible.